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SUGHRUE, MION, ZINN,
MACPEAK & SEAS, PLLC
2100 Pennsylvania Avenue, N.W.
Washington, DC 20037-3213

EXAMINER	
MENBERU, BENIYAM	
ART UNIT	**PAPER NUMBER**
2626	

DATE MAILED: 08/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/741,099	FUJITA, TORU	
	Examiner	Art Unit	
	Beniyam Menberu	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 December 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 December 2000* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5,6*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: The reference number "S69" (page 19, line 12) does not exist in any of the drawings.

Appropriate correction is required.

2. The disclosure is objected to because of the following informalities: The term "correlation." (page 19, line 18) should be "correlate."

Appropriate correction is required.

3. The disclosure is objected to because of the following informalities: The phrase "input CMYK" (page 26, line 19) should be "input L*"

Appropriate correction is required.

4. The disclosure is objected to because of the following informalities: On page 15, line 10, the phrase "index table 2" refers to an index table 2 which does not exist in the drawing.

Appropriate correction is required.

Drawings

5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "74" has been used to designate both Print Engine and Laser Diode on Figure 1. Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page

header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

6. The drawings are objected to because the reference 55 in Figure 5 labeled "Lusterize" is referred to a "Rasterizer" in the specification (page 22, line 12). Further, there is inconsistency between Figure 6 and Figures 3,4,7 for the labeling of the gamma characteristics in the first quadrant. In Figure 6, it is labeled "S54" while in the other Figures 3,4, and 7 it is labeled "G54". In addition, the gamma characteristic in Figure 8 in the first quadrant is not labeled. Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of

any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

7. The drawings are objected to because reference number 22 in Figure 2 is labeled "Index Matrix" but in the specification it is called "Index Table". Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 12, 16, 17, and19 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

10. Claim 12 recites "said halftone table includes a continuous relationship between said input tone data for said first color space and said tone data for said second color space". However the halftone table of claim 1 relates second color space with image reproduction data.

11. Claim 16 recites the limitation "said color space" in line 4. There is insufficient antecedent basis for this limitation in the claim.

12. Claim 17 recites the limitation "said color space" in line 9. There is insufficient antecedent basis for this limitation in the claim.

13. Claim 19 recites the limitation "said second color space" in lines 14-15. There is insufficient antecedent basis for this limitation in the claim.

14. Claim 19 recites the limitation "said gamma characteristic B" in lines 26-27. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

16. Claims 1, 2, 3, 4, 5, 10, 11, 12, 13, 14, 15, 16, 17, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5253082 to Hayashi et al in view of U.S. Patent No. 6111664 to Aoki et al further in view of U.S. Patent No. 5982990 to Gondek.

Regarding claims 1 and 18 Hayashi et al disclose both an image processing apparatus and a recording medium for storing an image processing program that permits a computer to perform image processing (Hayashi et al discloses that this process can be implemented in a program (column 6, lines 41-45).), which uses input tone data for a first color space image to generate reproduction data that express a halftone for an image, comprising:

and a halftone processor for converting said tone data for said second color space into image reproduction data, by referring to a halftone table that shows the correlation of said tone data for said second color space and said image reproduction data (Hayashi et al disclose a halftone processor (Figure 1B, reference 2160; column 8, lines 21-28), which has a look-up table (Figure 2A, reference 2101) that performs the halftoning conversion (column 8, lines 37-49). Further Hayashi discloses the characteristic of the lookup table used in the halftoning process (Figure 7, reference LUT (1)).)

Hayashi et al do not disclose a color converter, for performing an interpolation process, for referring to a color conversion table to convert said

input tone data for said first color space into tone data for a second color space and wherein a gamma characteristic A, for said input tone data for said first color space, for an output density relative to a tone value for each brightness level of an image corresponds to a gamma characteristic B, for said halftone table, for an output density relative to a tone value for each brightness level of an image.

Gondek discloses a color converter, for performing an interpolation process, for referring to a color conversion table to convert said input tone data for said first color space into tone data for a second color space (Gondek discloses a color conversion table for converting RGB to CMYK using interpolation (column 7, lines 25-30;column 9, lines 29-33).).

Aoki et al disclose an apparatus wherein a gamma characteristic A, for said input tone data for said first color space, for an output density relative to a tone value for each brightness level of an image corresponds to a gamma characteristic B, for said halftone table, for an output density relative to a tone value for each brightness level of an image (Aoki et al disclose an apparatus for the method of correcting the density (Figure 1, reference 3) characteristic (Figure 6, reference 72, 73; column 7, lines 44-49), wherein the 73 is the target curve and 72 is the actual characteristic of the printing engine (Figure 1, reference 32). By forcing the target curve to be similar to the input gamma characteristic, the density characteristic of the halftoning section can match that of the input gamma characteristic through the method discussed (column 7, lines 44-49). Thus the density levels can match for different levels of input for the two characteristics.)

Hayashi et al, Aoki et al and Gondek are combinable because they are in the same problem area of color conversion.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the color conversion and halftoning process of Hayashi et al in view of Gondek with the density correction system (Figure 1, reference 3) of Aoki et al to generate print output.

The motivation to combine the reference is clear because it is efficient to use interpolation to avoid having to store all the possible conversion values as taught by Gondek (column 3, lines 1-3; column 11, lines 43-48) and desirable to have a way to control the density characteristic of the output as taught by Aoki et al.

Regarding claim 2, Hayashi et al in view of Gondek further in view of Aoki et al teach all the limitations of claim 1. Gondek discloses a color converter wherein said first color space is a color space for an additive mixture of color stimuli, and said second color space is a color space for a subtractive mixture of color stimuli (Gondek discloses a color conversion table for converting RGB (additive color space) to CMYLcLmK (subtractive color space)(column 7, lines 25-30)), and wherein a difference, for said gamma characteristic A, between a ratio for a first input tone area of the change of said output density to the change of an input tone value, and a ratio for a second input tone area of the change of said output density to the change of an input tone value, which is lower than said input tone value for said first input tone area, is the same as a difference, for said gamma characteristic B, between a ratio for a third input tone area of the change

of said output density to the change of an input tone value, and a ratio for a fourth input tone area of the change of said output density to the change of an input tone value, which is higher than said input tone value for said third input tone area (Referring to claim 1, Aoki et al disclose an apparatus for correcting density wherein an input density characteristic can match density characteristic of a printer. If the density characteristic match for the input and the halftoning process and they are both linear, the difference in the ratio of change in density to change in input level (slope for line is same everywhere) for the input at two input levels (one brighter than the other level) will match the difference in ratio corresponding to the halftoning process).

Regarding claim 4, Hayashi et al in view of Gondek further in view of Aoki et al teach all the limitations of claim 2, wherein said color space for said additive mixture of color stimuli is either an RGB color space, an sRGB color space, a CIEXYZ color space or a CIELab color space, and said color space for said subtractive mixture of color stimuli is a CMYK color space (Gondek discloses a color conversion table for converting RGB to CMYLcLmK (column 7, lines 25-30)).)

Regarding claim 13 and19, Hayashi et al in view of Aoki et al further in view of Gondek disclose an image processing apparatus and a recording medium for storing an image processing program that permits a computer to perform image processing for generating (Hayashi et al discloses that this process can be implemented in a program (column 6, lines 41-45).), using input tone data for an RGB color space, image reproduction data that express tones by

using a plurality of printing dots comprising: a color converter, for performing an interpolation process, for referring to a color conversion table to convert said input tone data for said RGB color space into tone data for a CMYK color space(Gondek discloses a color conversion table for converting RGB to CMYLcLmK(column 7, lines 25-30)), and a halftone processor for converting said tone data for said second color space into image reproduction data, by referring to a halftone table that shows the correlation of said tone data for said CMYK color space and said image reproduction data(Hayashi et al disclose a halftone processor (Figure 1B, reference 2160; column 8, lines 21-28), which has a look-up table (Figure 2A, reference 2101) that performs the halftoning conversion (column 8, lines 37-49).), wherein, for a gamma characteristic A for an output density relative to a tone value of said input tone data for said RGB color space, a difference between a ratio for a first RGB tone area of the change of said output density to the change of an input tone value, and a ratio for a second RGB tone area of the change of said output density to the change of an input tone value, which is lower than said input tone value for said first input tone area, is the same as a difference, for said gamma characteristic B of said halftone table, between a ratio for a first CMYK input tone area of the change of said output density to the change of an input tone value, and a ratio for a second CMYK input tone area of the change of said output density to the change of an input tone value, which is higher than said input tone value for said first CMYK input tone area(Referring to claim 1, Aoki et al disclose an apparatus for correcting density wherein an input density characteristic can match density characteristic

of a printer. If the density characteristic match for the input and the halftoning process and they are both linear, the difference in the ratio of change in density to change in input level (slope for line is same everywhere) for the input at two input levels (one brighter than the other level) will match the difference in ratio corresponding to the halftoning process).

Regarding claim 15, Hayashi et al in view of Aoki et al further in view of Gondek teach all the limitation of claim 13 and Aoki et al discloses an electrophotographic apparatus comprising: a print engine for printing an image in accordance with image reproduction data (Aoki et al disclose a print engine (Figure 1, reference 32), which prints image in accordance with the output of the density corrector (Figure 2, reference 9).).

Regarding claim 17, Hayashi et al in view of Aoki et al further in view of Gondek teach all the limitation of claim 15 and Aoki et al disclose a print engine Wherein said print engine emits a laser beam in accordance with said image reproduction data to form a latent image, and attaches toner for said color space to said latent image (Figure 13, reference L; column 4, lines 3-9).

Regarding claim 14, Hayashi et al in view of Aoki et al further in view of Gondek teach all the limitations of claim 1 and Aoki et al further discloses an electrophotographic apparatus comprising: a print engine for printing an image in accordance with image reproduction data (Aoki et al disclose a print engine (Figure 1, reference 32), which prints image in accordance with the output of the density corrector (Figure 2, reference 9).)

Regarding claim 16, Hayashi et al in view of Aoki et al further in view of Gondek teach all the limitations of claim 14 and Aoki et al further disclose an electrophotographic apparatus wherein said print engine emits a laser beam in accordance with said image reproduction data to form a latent image, and attaches toner for said color space to said latent image (Figure 13, reference L; column 4, lines 3-9).

Regarding claim 10, Hayashi et al in view of Aoki et al further in view of Gondek teach all the limitations of claim 1, and Gondek discloses a color conversion method and apparatus wherein said first color space is a CIELab color space and said second color space is a CMYK color space (Gondek discloses that input can be of the form CIEL*a*b* and the output is CMYLcLmK (column 11, lines 24-30).), and Aoki et al further disclose an apparatus to match gamma characteristics, wherein a gamma characteristic of L* is the same as a gamma characteristic of said halftone table(Aoki et al disclose an apparatus for the method of correcting the density (Figure 1, reference 3) characteristic (Figure 6, reference 72, 73; column 7, lines 44-49), wherein the 73 is the target curve and 72 is the actual characteristic of the printing engine (Figure 1, reference 32). By forcing the target curve to be similar to the input gamma characteristic, the density characteristic of the halftoning section can match that of the input gamma characteristic through the method discussed (column 7, lines 44-49). Thus the density levels can match for different levels of input for the two characteristics.).

Regarding claim 11, Hayashi et al in view of Aoki et al further in view of Gondek teach all the limitations of claim 1, and Gondek discloses a color

conversion method and apparatus wherein said first color space is a CIELab color space or a CIEXYZ color space, and said second color space is a CMYK color space (Gondek discloses that input can be of the form CIEL*a*b* and the output is CMYLcLmK (column 11, lines 24-30).).

Regarding claim 3, Hayashi et al in view of Aoki et al further in view of Gondek teach all the limitations of claim 1 and Gondek discloses color conversion wherein said first color space is a color space for a subtractive mixture of color stimuli, and said second color space is a color space for a subtractive mixture of color stimuli (column 11,lines 24-30).

Regarding claim 12, Hayashi et al in view of Aoki et al further in view of Gondek teach all the limitations of claim 1, and Gondek discloses a color converstion table, wherein said color conversion table includes a discrete relationship between said input tone data for said first color space and said tone data for said second color space (Gondek discloses a color conversion table (column 7, lines 25-29) wherein the input signals are at discrete points (column 7, lines 55-66; column 8, lines 1-46). Thus there is discrete relationship between input and output), and Hayashi et al disclose a halftone table, wherein said halftone table includes a continuous relationship between said input tone data for said first color space and said tone data for said second color space (Hayashi et al disclose a halftone processor (Figure 1B, reference 2160; column 8, lines 21-28), which has a look-up table (Figure 2A, reference 2101). The lookup-table has all levels of input (column 12, lines 19-31). Thus it will have a continuous relationship).

17. Claims 5, 7, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5253082 to Hayashi et al in view of U.S. Patent No. 6111664 to Aoki et al further in view of U.S. Patent No. 6697167 to Takahashi.

Regarding claim 5, Hayashi et al in view of Aoki et al further in view of Gondek teach all the limitations of claim 1.

However, Hayashi et al in view of Aoki et al further in view of Gondek does not disclose a color conversion wherein said color space for said subtractive mixture of color stimuli is a CMYK color space.

Takahashi discloses a color conversion wherein said color space for said subtractive mixture of color stimuli is a CMYK color space (Takahashi discloses a gamma correction unit (Figure 3b, reference 312) that takes as input YMCK color (subtractive color space) and performs processing using a conversion table (column 24, lines 39-41) and interpolation (column 13, lines 63-67, column 14, lines 1-5) to output CMYK color space.).

Hayashi et al in view of Aoki et al further in view of Takahashi are combinable because they are in the same problem area of color conversion.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to connect the output of gamma correction unit (Figure 3b, reference 312) to the input of Hayashi et al system in view of Aoki et al to perform color conversion and halftone processing for printing.

The motivation to combine the reference is clear because in certain cases the input can be of the form CMYK color space and the system should be able to handle these types of color space.

Regarding claim 8, the combination of Hayashi et al, Aoki et al and Takahashi teach all the limitation of claim 1, and Takahashi discloses an image processing apparatus, wherein said gamma characteristic A and said gamma characteristic B have the same non-linear characteristic (Takahashi discloses a gamma correction unit (Figure 26, reference 312) that has a non-linear characteristic (Figure 26, reference 1903b). Thus if the halftoning is matched with this non-linear characteristic of the input as described in claim 1, then gamma characteristic A and gamma characteristic B will be the same non-linear characteristic.).

Regarding claim 9, the combination of Hayashi et al, Aoki et al and Takahashi teach all the limitation of claim 1, and Takahashi discloses an image processing apparatus, wherein said gamma characteristic A and said gamma characteristic B have the same S-shaped characteristic (Takahashi discloses a gamma correction unit (Figure 26, reference 312) that has an S-shaped characteristic (Figure 26, reference 1903b). Thus if the halftoning is matched with this S-shaped characteristic of the input as described in claim 1, then gamma characteristic A and gamma characteristic B will be the same S-shaped characteristic.).

Regarding claim 7, the combination of Hayashi et al, Aoki et al and Takahashi teach all the limitation of claim 1, and Takahashi discloses an image

processing apparatus, wherein said first color space is a first CMYK color space, and said second color space is a second CMYK color space; wherein, for said gamma characteristic A, a ratio in a first input tone area for the change in said output density to the change in an input tone value is smaller than a ratio in a second input tone area for the change in said output density to the change in an input tone value, which is lower than said input tone value in said first input tone area; and wherein, for said gamma characteristic B, a ratio in a third input tone area for the change in said output density to the change in an input tone value is smaller than a ratio in a fourth input tone area for the change in said output density to the change in an input tone value, which is lower than said input tone value in said third input tone area (Takahashi discloses an apparatus(Figure 3b, reference 312) that converts from CMYK to CMYK color space. Further, the gamma characteristic of reference 312 can be of the curve shown in Figure 26 (reference 1903b). This curve can be matched by the process of claim 1, so that both the input color converter and the halftoning process have corresponding density characteristics. For medium input level of the curve shown in 1903b, the change in density to change in input level increases as input level decreases. For the halftoning process, which is in the CMYK space similar to the input color space, the curve of 1903b will be mirrored. Thus the change in density to change in input level increases as input level decreases.).

18. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5253082 to Hayashi et al in view of U.S. Patent No. 6111664 to

Aoki et al further in view of U.S. Patent No. 5982990 to Gondek further in view of U.S. Patent 5357354 to Matsunawa et al.

Regarding claim 6, Hayashi et al in view of Aoki et al further in view of Gondek teach all the limitations of claim 1. The combination of Hayashi et al, Aoki et al, and Gondek do not disclose an image processing apparatus, wherein said first color space is either an RGB, an sRGB or a CIELab color space, and said second color space is a CMYK color space; wherein, for said gamma characteristic A, a ratio in a first input tone area for the change in said output density to the change in an input tone value is smaller than a ratio in a second input tone area for the change in said output density to the change in an input tone value, which is lower than said input tone value in said first input tone area; and wherein, for said gamma characteristic B, a ratio in a third input tone area for the change in said output density to the change in an input tone value is greater than a ratio in a fourth input tone area for the change in said output density to the change in an input tone value, which is lower than said input tone value in said third input tone area.

Matsunawa et al disclose an image processing apparatus, wherein said first color space is either an RGB, an sRGB or a CIELab color space, and said second color space is a CMYK color space; wherein, for said gamma characteristic A, a ratio in a first input tone area for the change in said output density to the change in an input tone value is smaller than a ratio in a second input tone area for the change in said output density to the change in an input tone value, which is lower than said input tone value in said first input tone area;

and wherein, for said gamma characteristic B, a ratio in a third input tone area for the change in said output density to the change in an input tone value is greater than a ratio in a fourth input tone area for the change in said output density to the change in an input tone value, which is lower than said input tone value in said third input tone area(Matsunawa et al disclose an apparatus (Figure 6, reference 15,16, and 17) that adjusts the input RGB so it has a particular gamma characteristic as shown in Figure 9(column 7, lines 52-58). The gamma characteristic (Figure 9, reference Lc) can be matched with the characteristic of the halftoning process according to claim 1. The change in density to change in input at low input level (Lc curve in Figure 9) is larger than the corresponding value at higher input level. The reverse is true for the matched gamma characteristic of the halftoning since it is in the CMYK space (low RGB level corresponds to high CMYK level). For the halftoning process, the change in density to change in input at low input level is smaller than the corresponding value at higher input level.).

Hayashi et al, Aoki et al, Gondek and Matsunawa et al are combinable because they are in the same problem area of color conversion and correction.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the density adjustment system of Matsunawa et al (Figure 6, reference 15,16, and 17), to the input of Gondek color converter so as to perform density adjustment to the input signal.

The motivation to combine the reference is clear because Matsunawa et al provide for an option to adjust the input RGB characteristic to the desired characteristic and color balance (column 7, lines 52-56).

Other Prior Art Cited

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6075614 to Ohtsuka et al. disclose an apparatus to generate proofs.

U.S. Patent No. 4899215 to Morita et al. disclose an apparatus that records color images.

U.S. Patent No. 5636290 to Kita et al. disclose a non-linear conversion system.

U.S. Patent No. 5258248 to Tokuhashi et al. disclose an apparatus for density control.

U.S. Patent No. 5563725 to Kumada et al. disclose an apparatus for image processing depending on device characteristic.

U.S. Patent No. 6519054 B1 to Ikeda et al. disclose an image processing apparatus with density correction.

U.S. Patent No. 6388768 B2 to Hada et al. disclose an apparatus for image reproduction.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Beniyam Menberu whose telephone number is (703) 306-3441. The examiner can normally be reached on 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kimberly Williams can be reached on (703) 305-4863. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the customer service office whose telephone number is (703) 306-5631. The group receptionist number for TC 2600 is (703) 305-4700.

Patent Examiner

Beniyam Menberu

08/18/2004

[redacted] NGUYEN
PATENT EXAMINER

AU 2626